

$$\text{الف) } y = \sqrt{rS_n - 1}$$

$$rS_n - 1 \geq 0$$

$$rS_n \geq 1$$

$$S_n \geq \frac{1}{r}$$

$$D_F = \left[rK\pi + \frac{K\pi}{r}, rK\pi + \frac{\delta K\pi}{r} \right]$$

$$\text{ب) } y = \sqrt{Cn - 1}$$

$$Cn \geq 1$$

$$D_F = \{ rK\pi \}$$

(P) ✓

$$\text{الف) } C_y = |u| - r$$

$$-1 \leq |u| \leq 1$$

$$r \leq |u| \leq r$$

$$r \leq u \leq r$$

$$r \geq u \geq -r$$

$$D_F = [-r, -1] \cup$$

$$[r, r]$$

$$\text{ب) } y = \arcsin \left(\frac{u^r + r + 1}{u^r + r + 1} \right)$$

$$-1 \leq \frac{u^r + r + 1}{u^r + r + 1} \leq 1 \Rightarrow (u^r + r + 1)(u^r + r + 1) \leq 1$$

$$\frac{1}{r} \leq \frac{u^r + r + 1}{u^r + r + 1} \leq \frac{r}{r} \Rightarrow (u^r + r + 1)(u^r + r + 1) \leq r$$

$$u^r + r + 1 \geq 0 \Rightarrow \frac{-r-1}{+} \leq \frac{-r-1}{+}$$

$$D_F = [-r, -1] \cup [r, r]$$

$$u^r + r + 1 \leq 0 \Rightarrow \frac{-r-1}{+} \geq \frac{-r-1}{+}$$

$$\text{الف) } y = \sqrt{r - \log(u - r)}$$

$$u - r \geq 0$$

$$u \geq r$$

$$r - \log(u - r) \geq 0 \Rightarrow \log(u - r) \leq r$$

$$D_F = (r, 11]$$

(P) ✓

$$\text{ب) } y = \log(a^r - u)$$

$$a^r - u \geq 0$$

$$a^r(a - 1) > 0 \Rightarrow D_F = (-1, 0) \cup$$

$$(1, +\infty)$$

$$\frac{-1}{-} \leq \frac{1}{-}$$

$$\text{الف) } y = \frac{r}{e^u + 1} \quad D_F = \mathbb{R}$$

(P) ✓

$$\text{ب) } y = \frac{r}{e^u - 1} \quad D_F = \mathbb{R} - \{0\}$$

$$\text{ج) } y = \frac{r}{e^u - r}$$

$$e^u \neq r$$

$$u \neq \frac{1}{r}$$

$$D_F = \mathbb{R} - \left\{ \frac{1}{r} \right\}$$

$$\text{د) } y = \frac{r}{e^u - r} \quad D_F = \mathbb{R} - \left\{ \log \frac{r}{e} \right\}$$

$$\log \frac{r}{e}$$

$$\text{الف) } y = (r + a + 1)!$$

$$r + a + 1 \geq 0$$

$$r + a \geq -1$$

$$a \geq -\frac{1}{r}$$

$$D_F = \left[-\frac{1}{r}, +\infty \right)$$

$$D_F = \left\{ a \mid a = \frac{k-1}{r}, k \in \mathbb{N} \right\}$$

(P) ✓

$$\text{ب) } y = \left(\frac{r + a - r}{r + a - 0} \right)!$$

$$\frac{r + a - r}{r + a - 0} \geq 0 \in \mathbb{N}$$

$$a = + \frac{-\delta w + r}{-r w + r}$$

$$D_F = \left\{ a \mid a = \frac{-\delta k + r}{-r k + r}, k \in \mathbb{N} \right\}$$